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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,962	05/30/2002	Robert William Bruce	13DV-13657	4043

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,962

Applicant(s)

BRUCE, ROBERT WILLIAM

Examiner

Jennifer C. McNeil

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 8, 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 10, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhu et al (US 6,812,176). Zhu teaches a thermal barrier coating for a turbine engine component comprising zirconia, a primary stabilizer oxide, a Group A oxide, and a Group B oxide. The primary oxide may be yttria at a concentration of 2-25 molar percent. The Group A and B oxides may be present at a concentration of 0.5-25 molar percent. The Group A oxide may include a rare earth oxide (lanthana for instance) or a transition oxide (tantala for instance). The Group B oxide may be neodymia. Regarding the concentration conversion from mol % to wt%, please see the enclosed chart.

Claims 1, 2, 3, 4, 5, 6, 7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al (US 5,789,330). Kondo teaches a zirconia thermal barrier coating which may include a stabilizer in the amount of 0.1-40 wt%. The stabilizer may be lanthana, neodymia, yttria, etc.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al (US 6,812,176). Zhu teaches a thermal barrier coating as discussed above, and gives overlapping ranges of oxide concentrations. While Zhu does not give specific examples of oxides within these ranges, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Zhu overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Claims 11, 12, 13, 14, 15, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (US 5,789,330) in view of Rickerby et al (US 6,025,078). Kondo teaches a thermal barrier coating as discussed above, and specifies its use for turbine blades. Kondo does not give a specific substrate or bond coating for the turbine blade. Rickerby teaches a zirconia based thermal barrier coating similar to that of Kondo which is used for turbine blades. Rickerby teaches a metal substrate and multiple types of bond coatings that may be used to improve the adhesion of the zirconia coating to the underlying substrate. One of ordinary skill would have found it obvious to use a bond coating to adhere the zirconia based thermal barrier of Kondo to an underlying substrate in a manner similar to that of Rickerby, as they both are coatings for turbine engine blades and have similar compositions.

Allowable Subject Matter

Claims 8, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant has amended the claims to reflect specific composition combinations of tantalum, lanthanum, neodymium, and yttrium. The claim reads “consisting essentially of”.

Applicant's amendments have overcome the rejection over Dorfman.

Zhu teaches a zirconia as discussed above. As shown in the attached chart, a composition having the mol% of 95.5 zirconia, 0.5 lanthanum, 3.0 yttrium, 0.5 tantalum, and 0.5 neodymium, converts to

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wt% of 90.5 zirconia, 1.3 lanthana, 5.3 yttria, 1.7 tantalum, and 1.3 neodymium. The 1.3 wt% of lanthana is substantially close to an upper limit of 1 wt%, and one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have same properties (*Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985)). Claim 1 allows for a situation where the combination of tantalum, lanthana, and neodymium where either the lanthana is 1 wt% or less or the neodymium is 0.6 wt% or less. Furthermore, the addition of other oxides (in reference to the options where only one or two oxides are added, i.e. tantalum only), the use of “consisting essentially of” is not considered to impart closed language unless the additional elements are shown to be detrimental to the product. The inclusion of oxides other than lanthana or tantalum is not considered to materially affect the basis and novel characteristics of the claimed invention.

Applicant's amendments have necessitated the new rejection over Kondo. For instance, claim 3 necessitated a new search, as previously there was no claim limiting the oxide to solely lanthana.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

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the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer C McNeil
Primary Examiner
Art Unit 1775



JCM